APPENDIX E. REVENUE FORECAST

Unlike many other public sector budget priorities, transportation holds an advantage in securing reliable funding because the great majority of transportation investment is enabled by dedicated sources at the state and federal levels, supported by taxes assessed on drivers. However, this freedom from having to directly compete for funding with other government areas is no guarantee for the availability of sufficient money to pay for the preservation of current highway system infrastructure—much less progress toward improved conditions. Furthermore, since the last MnDOT 20-Year Highway Plan update in 2009, a total of $30 billion[1] has been transferred within the federal budget from the Treasury's unrestricted-use General Fund to the dedicated Highway Account of the Highway Trust Fund, and the reauthorization agreed to in the summer of 2012 continues this practice with a further $17 billion transfer.[2] These ad-hoc transfusions have failed to restore the long-term balance between tax collections and spending for the Highway Account, leaving continued viability of the "user-pays" transportation model in question.

This chapter will describe the primary sources of public revenues for state highway transportation in Minnesota, along with historical trends in revenues and costs and their projections.

TRANSPORTATION EXPENDITURES IN MINNESOTA

In 2010, all levels of government combined spent $4.3 billion on highway services—including capital (roughly half the total), maintenance, and other budget areas—across Minnesota's 138,000 miles of federal, state, county, and local public roads.[3] This represented 1.6 percent of the state Gross Domestic Product—a measure of aggregate economic output.

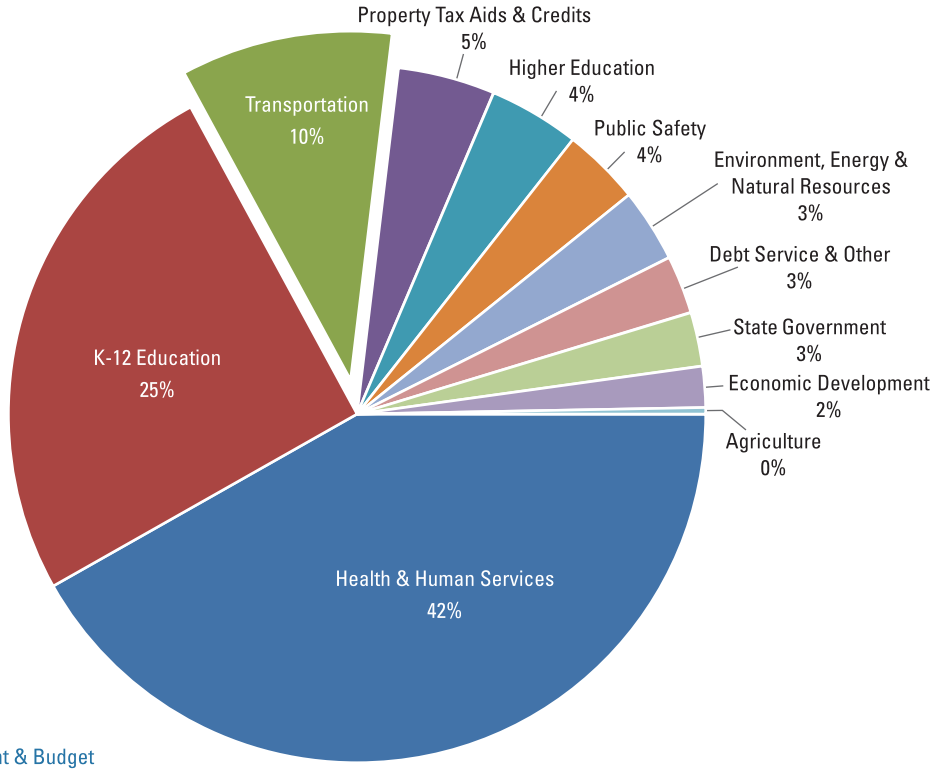
At the end of the 2012 Legislative session, Minnesota's state operating budget was expected to be $63 billion for the 2012-2013 biennium (July 1, 2011 to June 30, 2013).[4] Appropriated levels may change over the course of the biennium if tax and user fee collections vary from current projections.

State funding for all forms of transportation—including highways, transit, and other modes—accounted for $6.1 billion (an annual average of $3.1 billion for the biennium) or just under 10 percent of this operating budget, and ranked as the third-largest state program after health and human services and K-12 education. **Figure E-1** on the next page shows transportation's share of state expenditures in the context of the overall budget.

In turn, MnDOT's planned appropriations for the same 2012-2013 biennium are distributed as shown in **Figure E-2** (page 3)**.** While the ultimate purpose of this revenue forecast is to determine funding availability for State Road Construction within the 12,000-mile state agency-owned network (currently a little over a quarter of total MnDOT appropriations), it is important at the

1 http://www.fhwa.dot.gov/highwaytrustfund/index.htm
2 United States Senate Committee on Finance press release: http:bit.ly/M6Wu2n
3 http://www.fhwa.dot.gov/policyinformation/statistics/2010/hf2.cfm
4 http://www.mmb.state.mn.us/doc/budget/report-pie/all-june12.pdf#Page=2

Figure E-1: Minnesota Total Appropriated State Expenditures, All Operating Funds, 2012 to 2013 Biennium ($63 billion)



Source: Minnesota Management & Budget

same time to consider the expected levels of related accounts, including Operations & Maintenance and Debt Service, so as to ensure the fiscal and operational integrity of the comprehensive plan.

MINNESOTA HIGHWAY REVENUE SOURCES

Highways are funded by state and federal revenues that are raised through taxes and user fees.

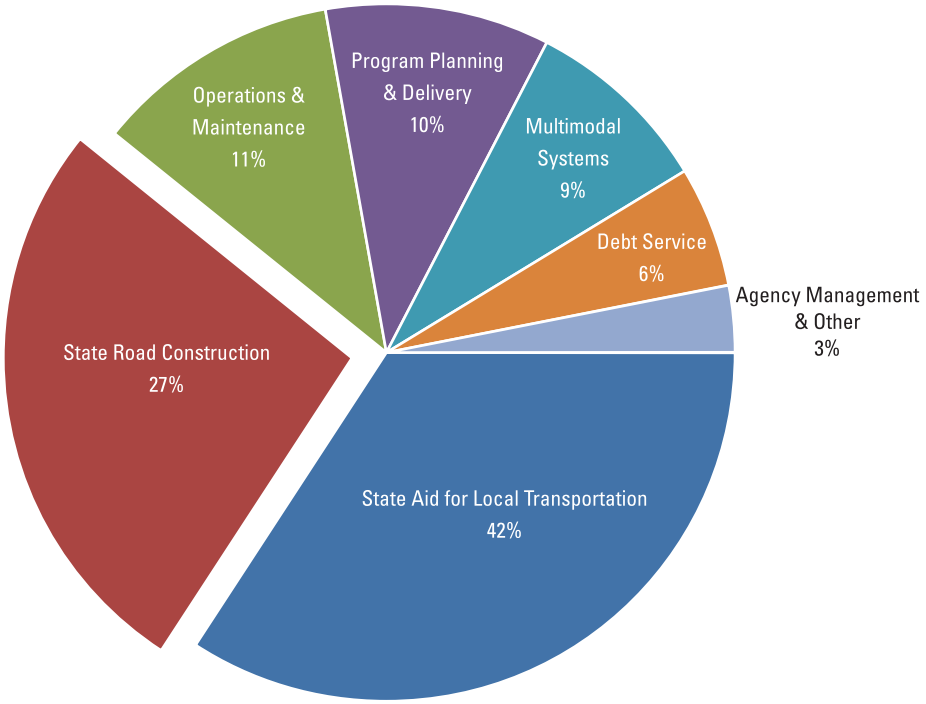
There are four main permanent revenue sources for the State Trunk Highway Fund generated $1.4 billion in SFY 2010. The amounts and shares of each are shown in the following table:

Revenue Source	**Amount** (millions)	**Share of Total**[5]
Federal-Aid Highway Program	$473 million	33%
Motor Fuels Excise Taxes	$470 million	33%
Motor Vehicle Registration Tax	$313 million	22%
Motor Vehicle Sales Tax	$128 million	9%
Total	**$1.4 billion**	

Highway improvements may also be supported by bonding. Bonding, which must be authorized by the State Legislature, is a financing approach, rather than a primary source of revenue. Bond financing can be used to advance the construction of projects

5 Percentages do not sum to 100 percent due to the presence of other, smaller contributors. The federal funding level for 2010 includes one-time stimulus assistance in addition to ordinary Highway Trust Fund outlays.

Figure E-2: MnDOT Appropriation Allocation Plan, All Appropriations, 2012 to 2013 Biennium ($6 billion)



Source: MnDOT Office of Financial Management, Financial Snapshot, State Fiscal Year 2012, February Forecast

and accelerate the delivery of benefits to the traveling public by effectively borrowing against future revenue. The principal and interest on the bonds are typically repaid over a 20-year period. This type of financing also may help to avoid construction cost increases due to inflation—an advantage that must be weighed against the additional interest expense incurred with bonding.

State transportation revenues are first deposited in the **Highway User Tax Distribution Fund (HUTDF).** After withholdings for administrative costs, transfers to the Department of Natural Resources, and a set-aside of five percent for the Flexible Highway Account (no part of which is currently directed to state highways), the remaining revenue is constitutionally distributed among the Trunk Highway Fund (62 percent), the County State-Aid Highway Fund (29 percent), and the Municipal State-Aid Streets Fund (9 percent) for cities with populations greater than 5,000.

MnDOT manages the Trunk Highway Fund to support four broad types of expenditures on the state highway system:

- Debt Service, for bond retirement
- Operations and Maintenance, combining traffic management, snow removal, pavement patching, and similar activities
- Program Planning and Delivery, including design and engineering work
- State Road Construction, representing the capital program for new construction and reconstruction of state highways and bridges

Turning to the Federal-Aid Highway Program, tax proceeds from gasoline (and gasohol gasoline/ethanol blends), diesel, and other user fees are collected in the Highway Account of the Highway Trust Fund. Highway Account apportionments to Minnesota and

other states, for use on both eligible state and local facilities, are then governed by a formula that takes into account the size and usage of each state's highway network, among other factors.[6]

The subsequent program-level allocation of federal funds within Minnesota follows the MAP-21 Surface Transportation Authorization enacted in the summer of 2012. A fraction of federal revenue is directed to the Statewide Bridge and Corridor Program, created to assist in the funding of larger bridge and other improvement projects that a single MnDOT District or **Area Transportation Partnership (ATP)** would have difficulty funding with its standard targeted share of federal funds.

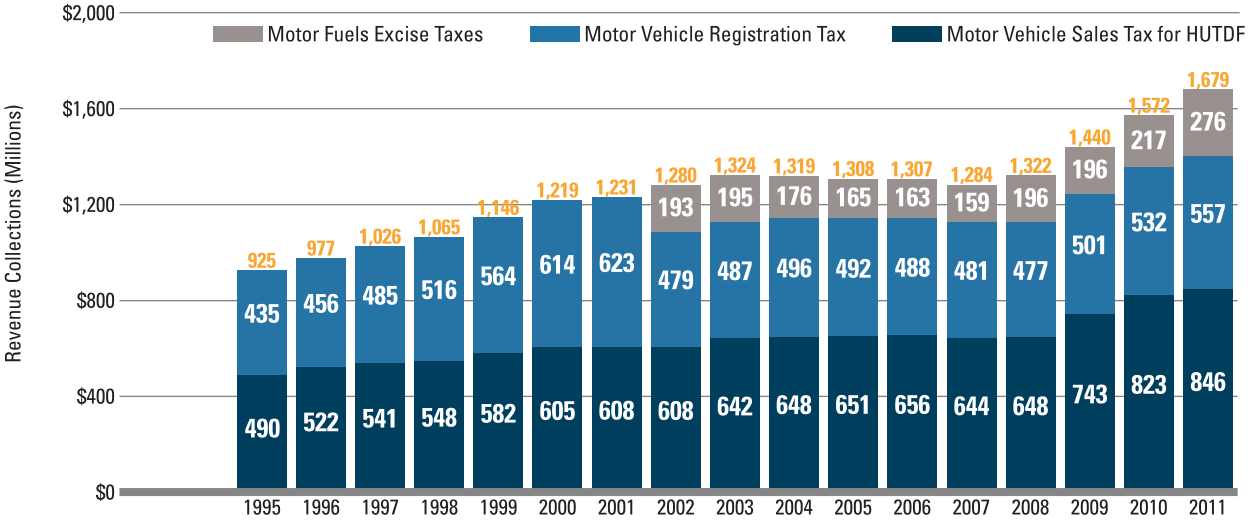
The remaining—and greatest—share of federal support is distributed among the eight ATPs through a target formula. This target formula takes into account each ATP's share of statewide infrastructure preservation (60 percent), mobility (30 percent), and safety (10 percent) needs. Each ATP consists of a MnDOT District and various local transportation partners, including **Metropolitan Planning Organizations (MPOs), Regional Development Commissions (RDCs),** and transit, other modal, county, city, and tribal government representatives. The ATPs integrate state and local priorities for federal funding within their regions and decide the division of federal funding between MnDOT and local governments. While an average of approximately two-thirds of federal funding is programmed for state highways, this share varies across ATPs and over time.

TRENDS IN MINNESOTA HIGHWAY REVENUES AND COSTS FROM 1995 TO 2011

State Revenue Trends

State highway revenue collections increased at an annual rate approaching 4 percent between 1995 and 2011. The decade of the 1990s was a period of high growth for all revenue sources. However, this growth slowed significantly beginning in 2000 and continuing through 2007, as illustrated in **Figure E-3,** charting the recent history of HUTDF revenues.

Figure E-3: Trends in Minnesota's Primary State Transportation Revenue Sources



Source: MnDOT Office of Financial Management

6 A small fraction—less than 8 percent, by Eno Center for Transportation estimates—of federal surface transportation spending is left to the discretion of the U.S. Department of Transportation.

From 1995 to 2000, sustained macroeconomic growth generated steadily increasing revenues. Expanding global trade, low inflation, and high employment buoyed U.S. markets as a whole, and Minnesota outperformed the national average. Income and population growth fueled correspondingly higher consumer budgets for new vehicles and travel. At the same time, low and stable world oil prices encouraged the purchase of larger, less fuel-efficient vehicles, boosting all three major revenue sources. Between 2000 and 2007, however, state transportation revenue grew at an annual rate below 1 percent, and both 2006 and 2007 saw small declines. After the short domestic recession in 2001, Minnesota's economy failed to rebound to the prior pattern of growth.

Since the last 20-year highway plan was developed in 2008, tax rates have changed for all state sources, generating additional MnDOT revenues:

- Incremental fuel tax surcharges for debt service (reaching the final step of 3.5 cents per gallon in the summer of 2012)
- Adjusted depreciation schedule and elimination of maximum registration taxes for newer vehicles
- Rising share of the sales tax devoted to highways (now 60 percent)

Chapter 152 Bond Funding

Minnesota Laws 2008, Chapter 152 authorized an additional $1.8 billion in bonding capacity between 2009 and 2018 to finance state highway-related improvements. At the same time, the base motor fuel tax rate was raised on gasoline and diesel, for the first time since 1988, from 20 to 25 cents per gallon. A further per-gallon surcharge was implemented, starting at 0.5 cents in SFY 2009 and eventually reaching 3.5 cents from SFY 2013. This surcharge will remain in effect while debt service payments continue on the Chapter 152 bonds. Through September 2011, the state had sold just over half ($1.3 billion) of the total $2.5 billion in trunk highway bonds authorized since 2000.[7]

Chapter 152's increased bonding availability was predominately directed to the Tiers 1 and 2 Bridge Program for repair or replacement of fracture-critical or structurally-deficient bridges. MnDOT expects 120 bridges will be under contract for such work by June 30th, 2018. The total program cost has been estimated at $2.5 billion over the 10-year period, to be funded through $1.2 billion of bonds and $1.3 billion of Trunk Highway Fund revenue. (Interchange projects, a specific legislative priority, and accelerated pavement and safety projects consumed the residual Chapter 152 financing.)

Motor Fuels Excise Taxes

Revenue from state fuel taxes increased at an annual rate above 4 percent from 1995 to 2000. Beginning in 2001, strengthening demand for oil, particularly from India and China—without comparable supply influxes—pressured world oil prices and heightened sensitivity to periodic supply shocks. Between 2003 and 2008, fuel tax proceeds stagnated, and the debt service-related surcharge initiated in 2008 was solely responsible for this source resuming a transitory upward trajectory. In other words, with volume consumption (gallons) essentially flat, the only way to obtain higher revenue is through a per-gallon tax rate increase.

Motor Vehicle Registration Tax

Popularly known as "tab fees," motor vehicle registration tax revenue rapidly grew at an annual rate topping 7 percent from 1995 to 2000. Collections fell sharply after 2001 with the prior year implementation of caps that limited the bill for the first renewal period to $189 and set the maximum fee for subsequent renewals at $99.

7 MnDOT Office of Financial Management, *Financial Snapshot, State Fiscal Year 2012, February Forecast*

Motor Vehicle Sales Tax (MVST)

Prior to 2000, all MVST revenue was deposited in the State General Fund. In 2000, to compensate for the revenue lost by capping the registration tax, the State Legislature statutorily directed 30 percent of MVST revenue to the HUTDF. This shift from tab fees to MVST meant transportation revenue would in future be more dependent on new vehicle purchases.

Just as a portion of MVST revenue was transferred for highway purposes, its value as a funding source began to subside from the high growth recorded in the late 1990s. Demand for new vehicles remained depressed in the medium term following the 2001 recession, and MVST collections for HUTD did not surpass their 2003 peak for the next several years.

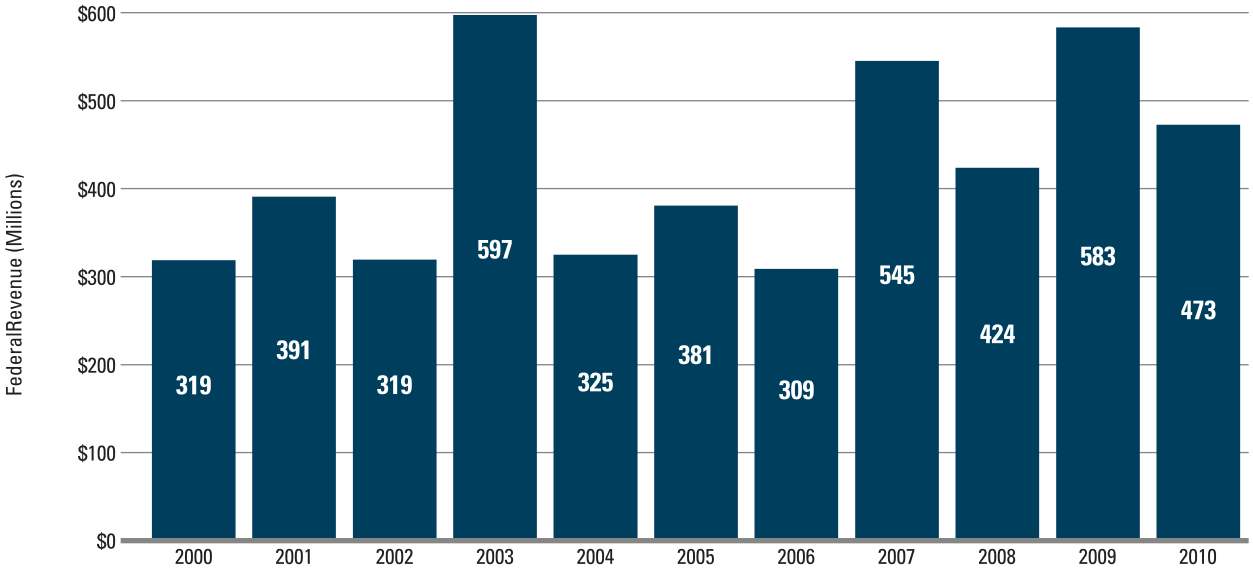
Late in 2006, voters approved a constitutional amendment that would eventually—over a five-year phase-in period—dedicate 100 percent of MVST revenue to transportation investment. The amendment further specified that up to 60 percent of MVST proceeds would be dedicated to highways (via the HUTDF) and at least 40 percent to transit. These ceiling/floor conditions, and the zeroing out of the State General Fund share, were attained beginning in State Fiscal Year (SFY) 2012 (from July 1st, 2011).

Federal Revenue Trends

As graphed in **Figure E-4,** from 2000 to 2010, multi-year authorization bills for the Federal-Aid Highway Program enabled revenue received by Minnesota to generally increase—though with some year-to-year volatility—averaging annual growth of 4 percent.

The previous federal transportation bill (SAFETEA-LU) passed in 2005 increased highway funding through two policy changes. First, a redistribution between the two sub-accounts of the Highway Trust Fund was made for gasohol (blended gasoline and ethanol) tax collections. Taken as a whole, the Highway Account benefited (offset by Transit Account reductions) from these extra excise tax proceeds. Furthermore, Minnesota's mandated use of gasohol[8] created a preferential gain from the accounting change. Second, Congress supported increased federal funding by drawing on the accumulated Highway Trust Fund balance.

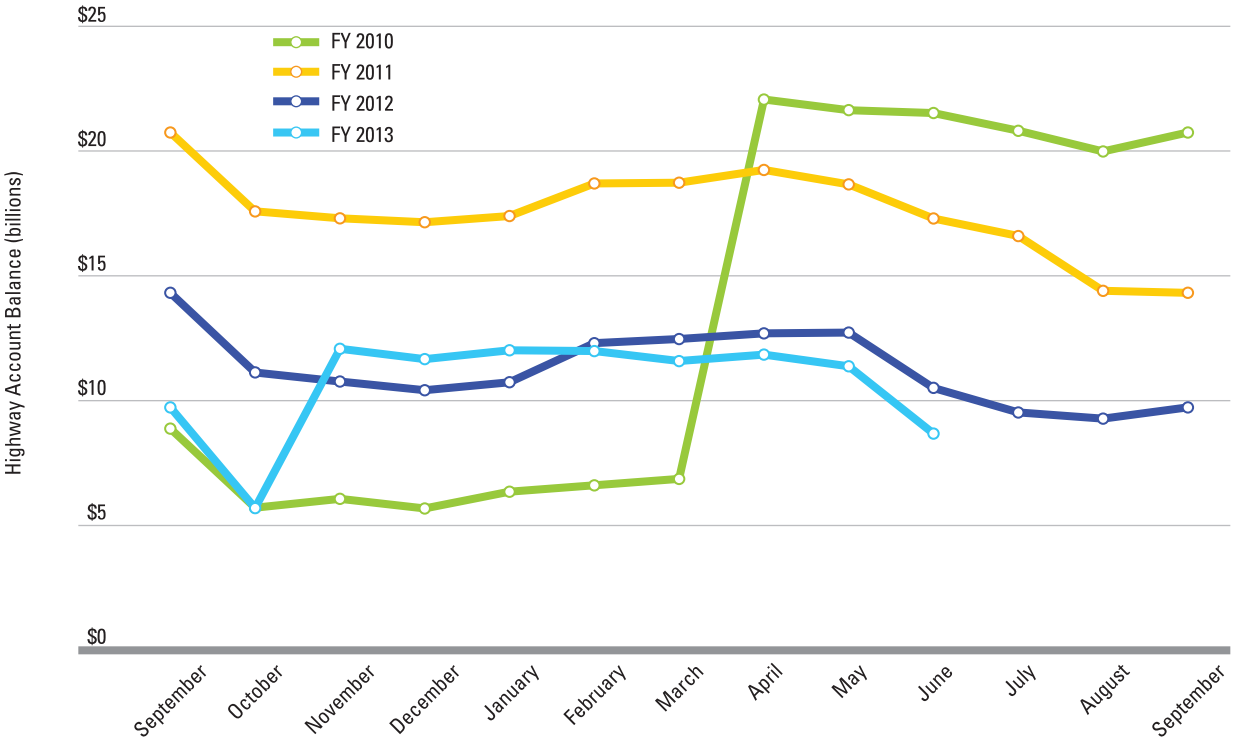
Figure E-4: Trend in Federal-Aid Highway Program Revenue



Source: MnDOT Office of Financial Management

8 Minnesota was the first state with such a mandate and in 2005 enacted a requirement to achieve 20 percent ethanol content in all gasoline sold by 2013.

Figure E-5: Historical Balances for Federal Highway Trust Fund, Highway Account



Ending balance for FY 2010 includes $14.7 billion transferred from the General Fund in April pursuant to Public Law 111-147.
Ending balance for FY 2012 includes $2.4 billion transferred from the Leaking Underground Storage Tank Trust Fund in August pursuant to Public Law 112-141.
Ending balance for FY 2013 includes $6.2 billion transferred from the General Fund in November pursuant to Public Law 112-141.

Source: U.S. Dept. of Transportation, Federal Highway Administration (http://www.fhwa.dot.gov/highwaytrustfund/index.htm [updated monthly])

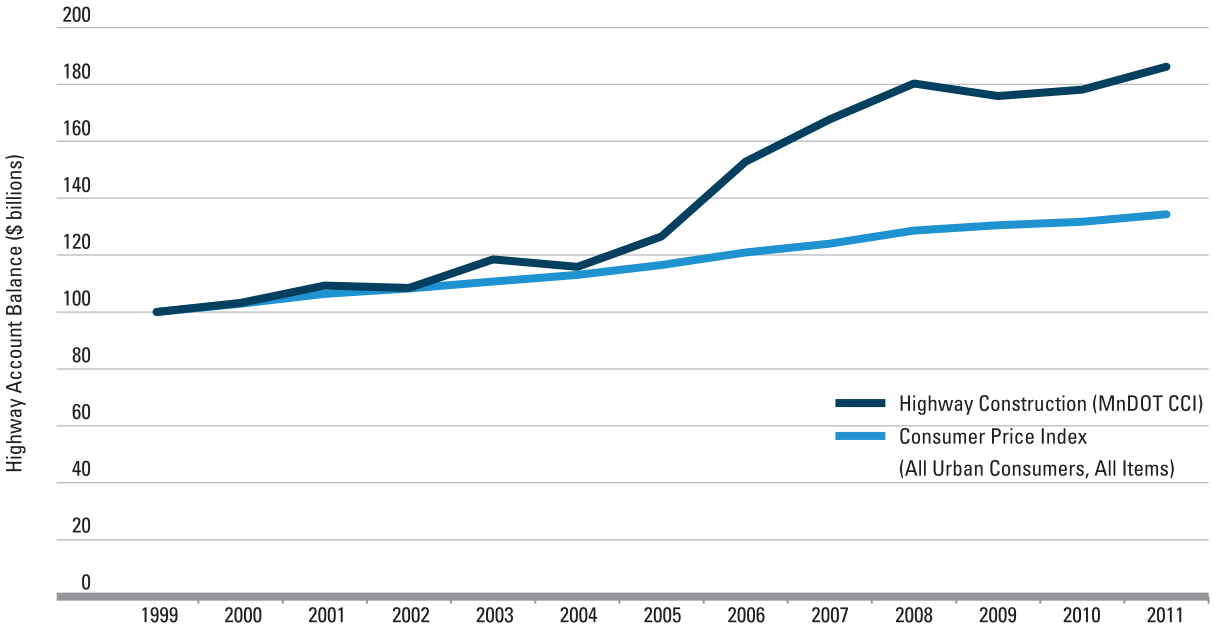
However, in a reversal of fortune depicted in **Figure E-5,** the balance for the Highway Account of the Highway Trust Fund progressively diminished with the approach of SAFETEA-LU's (original) expiration, as growth in federal fuel tax collections underperformed the authorized spending curve. To continue fulfilling the spending level commitments, a series of transfers from the General Fund to the Highway Account were passed in Federal Fiscal Years 2008, 2009, and 2010.

MAP-21, the successor to SAFETEA-LU and the current authorization act that will be in effect through September 2014, acknowledges the ongoing structural gap between fuel tax revenues and desired investment program size by proactively supplementing the Highway Trust Fund with non-transportation-related General Fund infusions. A more lasting resolution to the chronic inflow/outgo imbalance will presumably be sought for the post-MAP-21 era.

Highway Construction Cost Trends

Over the period from 1999 to 2011, highway construction costs as measured by MnDOT's **Construction Cost Index (CCI)** increased at an annual rate of 5 percent. CCI spikes in the middle of the past decade were largely attributable to the underlying pricing environment for essential commodities such as bituminous, steel, and concrete. While the global recession beginning in 2007 reduced demand for these materials and stabilized prices, a continuing divergence is anticipated between the inflation for inputs specific to highway infrastructure and that measured by broadly reported general indicators such as the CCIs, designed to track transactions for a wider selection of goods and services. A comparison of the recent development for these two indexes is shown in **Figure E-6** (next page).

Figure E-6: Recent Trends for Highway Construction (MnDOT CCI) and Consumer Price Indexes



Source: MnDOT Office of Project Management & Technical Support, Cost Data & Estimating Unit; U.S. Dept. of Labor, Bureau of Labor Statistics

The relatively high inflation rate experienced for highway construction has decreased the purchasing power of transportation revenues. **Figure E-7** (next page) represents both actual construction program expenditures, denominated in nominal/current/year-of-construction[9] dollar terms, as well as the same activity expressed in real/constant Year 2000 dollars. Adjusting for inflation in this way demonstrates the difficulty of accomplishing a given volume of work output—as measured in units such as paved lane-miles or bridges built by deck length and structural type—when year-to-year growth in the prices of required inputs is outpacing additional funding availability. Although the absolute, nominal construction budget may increase over time, when inflation rises yet more quickly, MnDOT's ability to sustain a fixed level of effort or quantity of system improvements will be compromised. This erosion of purchasing power is expected to remain a challenge to investment decision making over the 20-year planning horizon, as detailed later in the chapter.

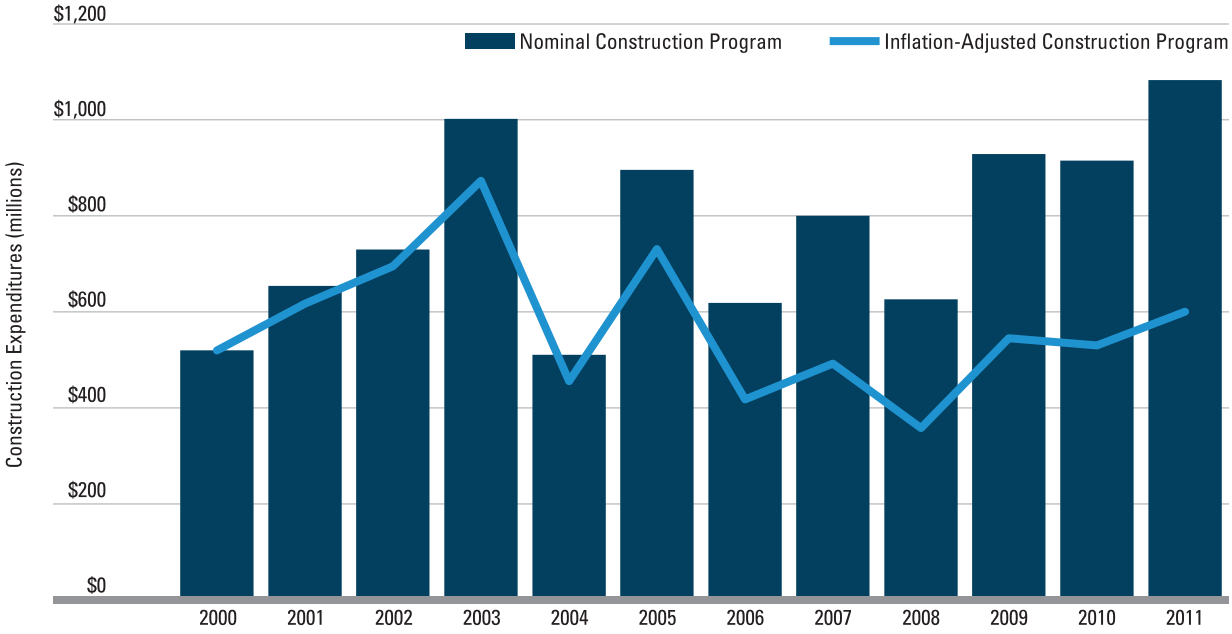
STATE ROAD CONSTRUCTION OUTLOOK FROM 2014 TO 2033

February 2008 marked the State Legislature's last major enactment affecting transportation funding for highways, as well as investment priorities. Subsequent to this legislation, the projections that follow assume current MnDOT budget policies, as well as state and federal tax laws, remain in effect through 2033. No new one-time funding is included, only the existing dedicated transportation taxes are forecast, and all revenue collected in a certain year is spent within that year—beyond what is already programmed, no scenarios for fund balance accumulation or drawing down are considered.

While a long-term perspective is necessary for planning purposes, any multi-decade revenue guidance is naturally subject to significant uncertainties and reflects consensus opinions and data—gathered within MnDOT and other state agencies as well as from national governmental and private forecasters—available at this writing (summer of 2012). Such a snapshot of the expected direction for major revenue sources enables the development of fiscally-constrained investment scenarios detailed in later chapters. Any material departures from the baseline assumptions affecting future revenues as a result of new or revised policies at the federal or state level will be separately assessed as they emerge.

9 All of these labels are synonymous and will later be used interchangeably.

Figure E-7: Minnesota State Highway Construction Expenditures, Nominal and Real Amounts



Source: MnDOT Office of Capital Programs and Performance Measures

The outlook additionally relies upon MnDOT requesting—and the Legislature approving—future year appropriations to support the indicated investment levels. As a final guiding principle, debt service on trunk highway bonds is assumed to remain a first charge on Trunk Highway Fund tax collections. The forecast specifies the distribution of remaining Trunk Highway Fund revenue between, (a) State Road Construction, and (b) all other eligible uses.

Construction Cost Expectations

Highway construction cost inflation forecasts are annually updated in the fall for a 10-year horizon, and the latest mid-range projections are assumed to prevail for the following decade as well. While actual year-to-year inflation will naturally fluctuate, the compound average rate of 5 percent assumed from 2014 to 2033 is in line with observations over the past decade and only marginally higher than the comprehensive historical average since the CCI's inception in 1977 of 4.3 percent. This inflation factor can be interpreted as the bridge between nominal and real representations of future funding amounts, and both perspectives will be considered later in the chapter.

It is worth noting that this 5 percent level will almost certainly exceed broader inflationary measures—such as the headline Consumer Price index—as well as other areas of MnDOT's own budget. Specifically, based on long-term performance, Operations and Maintenance activities, requiring a higher labor input component and lower manufacturing / commodity intensity compared with initial construction, should expect lower average inflation— in the 3 percent range—reflecting more moderate escalation in employee compensation. The division of funding between, (a) State Road Construction, and, (b) Operations and Maintenance, has been managed while recognizing the distinct inflationary paths projected for each budget category, as described below.

Future Revenue-Generation Context

Trends in Light-Duty Vehicles (LDVs)

A just-released EPA report[10] highlights trends in vehicle characteristics that help to explain historical stability—and even pressure for modest growth—in highway-related tax revenues.

	1975	1987	2004	2008	2011
Adjusted Fuel Economy (MPG)	13.1	22.0	19.3	21.0	22.8
Weight (lb)	4,060	3,221	4,111	4,085	4,084
Horsepower	137	118	211	219	228
Truck Production	19%	27%	45%	39%	38%
Hybrid	-	-	0.5%	2.5%	4.0%

All else equal, heavier and more powerful vehicles have higher sticker prices (boosting sales tax receipts) and enduring valuations (raising recurring registration payments). Since 1987, average LDV weights and horsepower ratings have climbed 27 percent and 93 percent, respectively. Neither attribute has fluctuated materially over the past decade.

Bearing this out, IHS Global Insight analysis shows the typical price for a new LDV has grown at an annual rate of 3.3 percent since 1991, outpacing inflation across all CPI items for the period (2.5 percent). However, forecasts call for future vehicle price increases to slow to 2.1 percent annually through 2033.

The truck share of the LDV fleet has subsided somewhat in the past few years, yet remains nearly ten times the gas-electric hybrid fraction. (Pure-electric plug-in car adoption has underperformed even the industry's conservative business plans, and this segment is an inconsequential part of today's fleet composition.) To the extent that market share growth for smaller, fuel-efficient conventional cars exceeds that of higher-priced trucks and alternative technology vehicles, average pricing will struggle to sustain its historical trend.

An independent study[11] connects these developments with MPG statistics, noting that:

> *"Because automobiles are bigger and more powerful than they were three decades ago, major innovations in fuel efficiency have only produced minor gains in gas mileage."*

Specifically, if average weight and horsepower measures had remained constant at 1980 levels, fleet-wide fuel economy today would be 10 MPG higher than actually observed (virtually flat since 1987, as seen in the EPA table).

Consequently, multiple approaches may be pursued to achieve future gains in fuel economy. Besides tilting the fleet mix in favor of smaller, lighter vehicles, announced changes to the composition of vehicle frames—by raising the aluminum-to-steel ratio in truck frames—also hold promise to incrementally lift aggregate MPG. The federal Energy Information Administration (EIA) 2012 Annual Energy Outlook (Early Release) projects that in 2033, the average "on-the-road" light-duty stock vehicle will achieve 27.4 MPG and a new LDV will test at 37.7 MPG.[12] The same source suggests motor gasoline prices will rise from $2.75 per gallon

10 *Light-Duty Automotive Technology, Carbon Dioxide Emissions, and Fuel Economy Trends: 1975 Through 2011*, http://www.epa.gov/otaq/fetrends.htm
11 MIT News Office press release, *The Case of the Missing Gas Mileage*, http://web.mit.edu/press/2011/cars-on-steroids-0104.html
12 This baseline scenario does not include potential increases to CAFE standards contained in an EPA Notice of Proposed Rulemaking. As promulgated, this further acceleration of fuel economy improvement will phase in starting with the 2017 model year.

in 2010 to $4.00 per gallon by 2033 on an inflation-adjusted basis, while pumps in the year 2033 will read a nominal $6.15 per gallon.[13]

Trends in Driver Behavior

As summarized in an October 2011 report written by the Office of Transportation Data and Analysis (TDA)[14],

> *In previous decades, Minnesota has seen steady growth in VMT [vehicle miles traveled]. However, since 2004 VMT growth in Minnesota has been virtually flat and from 2009 to 2010 [latest data available] it declined by 0.5 percent.*

At the national scale, the Federal Highway Administration estimates that total VMT further declined by 1.2 percent year-over-year in CY 2011. Annual growth rates for the 1992-2010 period have averaged 1.7 percent both within Minnesota and nationally. Controlling for population growth, TDA found that per capita metro-area VMT in 2010 fell below the 1998 level.

Even after factoring in some degree of post-recession recovery—moderated by response to elevated fuel prices—EIA forecasts national LDV VMT will increase at a rate of 1.4 percent from 2011 through 2033. The comparable per capita (population aged 16 and over) statistic is minimal growth of 0.4 percent.

Combining these future trajectories for MPG and VMT, EIA modeling indicates West North Central (including Minnesota) regional gasoline consumption will decline by 1.4 percent a year between 2011 and 2033. IHS Global Insight expects MPG and VMT developments to almost perfectly neutralize each other, leaving total consumption of gasoline and special fuels (e.g. diesel) in 2033 virtually unchanged from the 2011 volume. A blend of EIA and IHS Global Insight scenarios is adopted for the 20-year plan, following the procedures of the Office of Financial Management in their short-term forecasts.

LDV sales for the quarter ended March 2012 were the highest since the recessionary trough that first appeared in 2008 and has lingered amid on-again, off-again consumer confidence in the years since. Following steady annual production in the range of 16-17 million LDVs earlier in the decade, the industry reached a low point of 10.4 million units sold in 2009. Sales picked up to 12.8 million in 2011 and are on track to surpass 14 million for 2012. The remarkable speed and magnitude of the current rebound caused IHS Automotive to raise its 2012 forecast by a million units in the space of just four months.

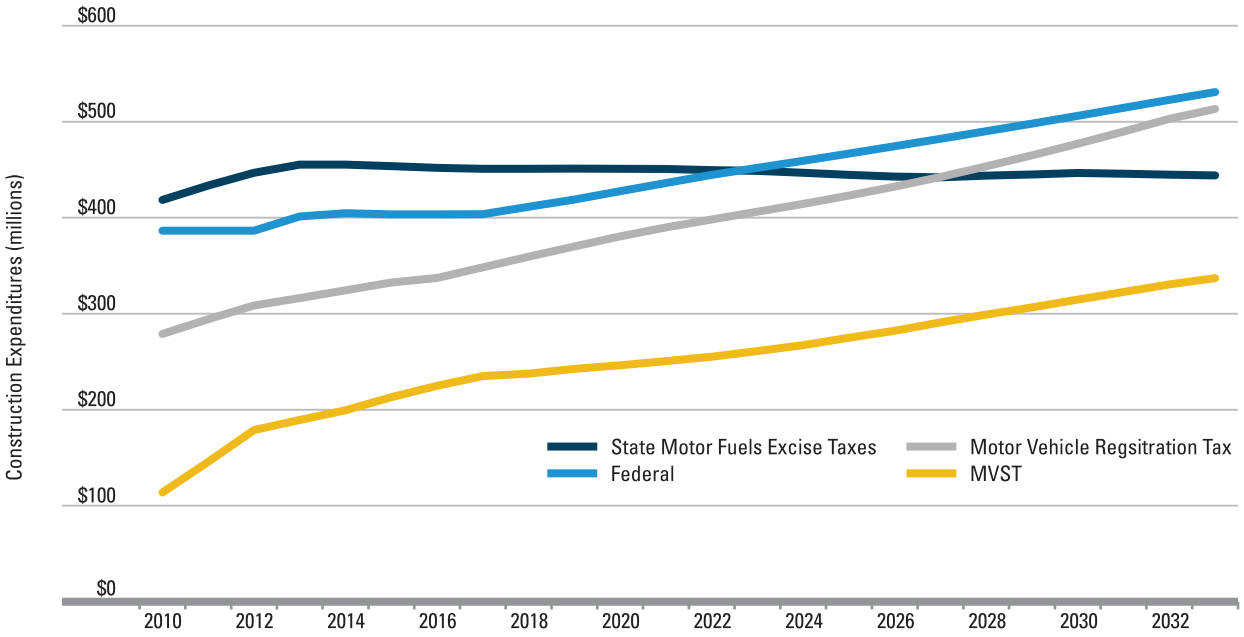
Rather than dampen driver motivation for new car shopping, near-record nominal gas prices appear to be triggering pent-up demand and reinforcing the shift in fleet mix toward smaller cars, begun when pump prices spiked at the recession's outset. Such fuel-efficient models are now approaching a quarter of new LDV sales. Average LDV age hit a record in 2011 (estimated at 10.8 years old) and the average age of trade-ins early in 2012 was the highest observed (about 6.2 years old) outside of the federal Cash for Clunkers rebate program implemented in 2009. As drivers reach the limits of their ability/desire to hang onto high-maintenance vehicles that carried them through uncertain recessionary straits, the ongoing short-term upswing in LDV sales is economically justified. Over the long run, LDV unit sales will grow at a 1.8 percent annual rate from 2011 through 2033, according to IHS Global Insight.

Revenue Forecast

Looking first at the aggregate level of the four major permanent revenue foundations of the Trunk Highway Fund, **Figure E-8** illustrates the projected evolution—viewed from a nominal-dollar perspective—of state and federal sources over the next 20 years.[15]

13 http://www.eia.gov/forecasts/aeo/pdf/tbla12.pdf
14 *Vehicle Miles of Travel Trends in Minnesota: 1992-2010*, http://www.dot.state.mn.us/traffic/data/reports/2010%20VMT%20Report.pdf
15 Values for state sources shown here are prorated after removal of non-MnDOT/highway allocations.

Figure E-8: Long-Term Trends for Revenue Sources, Flows into Trunk Highway Fund



Source: MnDOT Office of Capital Programs and Performance Measures

Although currently the largest contributor to the total, the state motor fuels excise taxes are due to be eclipsed for this distinction by 2033. As observed previously, offsetting growth in VMT and fuel economy will likely generate flat, or slightly declining, net gasoline consumption. Absent the passage of any per-gallon rate increase, tax collections will proportionately mirror this volume trend plateau.

Conversely, the three other transportation revenue pillars are forecast to grow in nominal dollars. Higher LDV unit sales, initial pricing, and recurring assessed values will propel motor vehicle registration tax and MVST to annual increases in the 2-3 percent range. Weighted down by negligible changes to collections in motor fuels excise taxes, the collective state revenue pool is projected to expand at a 1.4 percent annual rate.

Federal dollars are independently modeled as also growing 1.4 percent per year. The key assumption behind this factor is that authorized spending post-MAP-21 (SFY 2015 and beyond) will not be constrained by federal fuel tax proceeds as currently scheduled. This is consistent with the General Fund support integrated into MAP-21. Spending levels specified by MAP-21 comprise the initial years of the projection, through SFY 2017, representing the two-biennium budget horizon. Subsequently, the plan follows Congressional Budget Office forecasting for federal obligation limitation amounts.

While the great majority of the Federal-Aid Highway Program is restricted to State Road Construction use, more discretion is permitted for revenues collected at the state level. Consequently four alternative scenarios were evaluated for the division of state-sourced Trunk Highway Fund revenues that remain after forecast debt service payments are set aside. These strategies are listed in ascending order of the share each would award for State Road Construction:

a) Fund Operations and Maintenance at an annual growth rate equal to its expected 3 percent inflationary increases (remainder to State Road Construction)

b) Continue allocation for State Road Construction as budgeted since SFY 2009 ($290 million annually) (remainder to Operations and Maintenance)

c) Choose growth rates for (a) State Road Construction, and, (b) Operations and Maintenance so that the expected future purchasing power change (loss)—defined as the gap between funding and inflationary increases—is the same for both categories

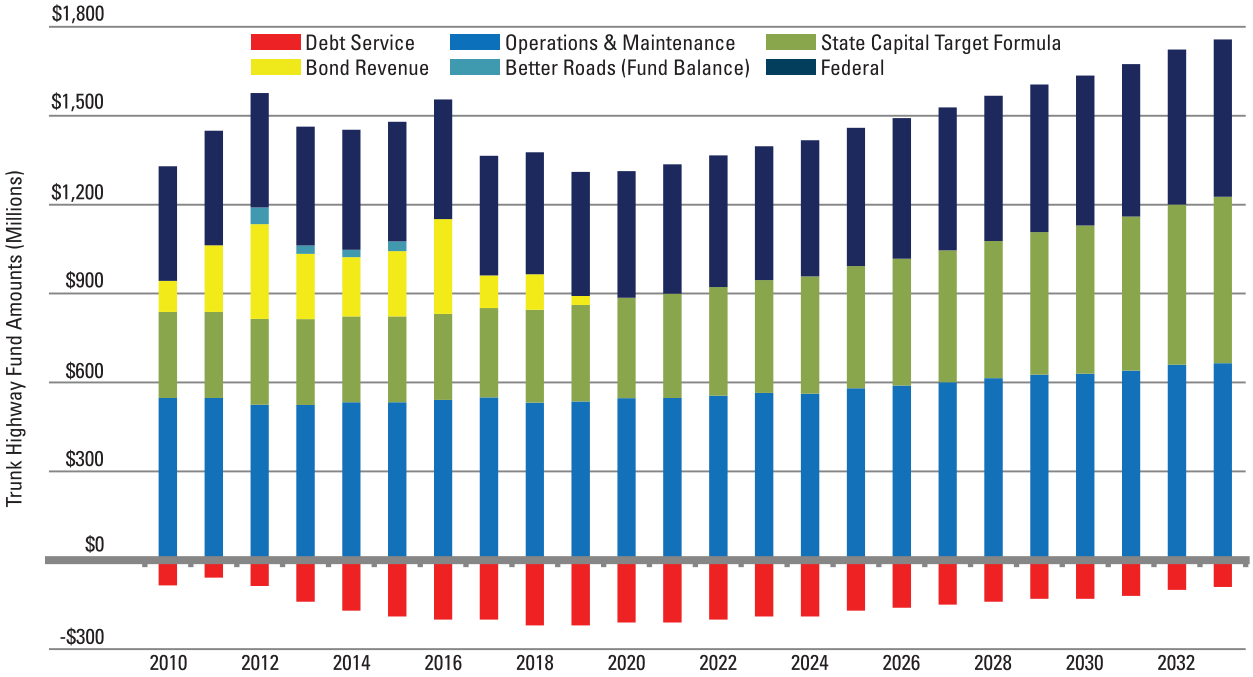
d) Fund State Road Construction at an annual growth rate equal to its expected 5 percent inflationary increases (remainder to Operations and Maintenance)

Weighing enterprise obligations and risks/uncertainties, option (c) was considered to be preferred and serves as the basis for **Figure E-9,** presenting a consolidated picture of Trunk Highway Fund accounting projected over the next 20 years.

Appearing as a negative quantity, below the horizontal axis, is each year's estimated debt service payment, shaded red. This commitment is expected to reach approximately $200 million in SFY 2016 and remain at or above this level into the early 2020s. This is equivalent to 19 percent of total state-sourced Trunk Highway Fund revenues. To comply with established debt policy guidelines, annual payments should not exceed the 20 percent threshold on this measure, indicating a restricted capacity for further bond issuance. In SFY 2033, the final year of this plan, predicted debt service is $90 million, comparable to the $87 million retired in SFY 2012.

The first two positive column segments illustrate the agreed-upon division between (a) Operations and Maintenance, and, (b) State Road Construction (capital investment funding distributed through a target formula), colored blue and green, respectively. The allocation for Operations and Maintenance rises at an annual rate just over 1 percent, compared with growth for State Road Construction slightly above 3 percent. Placed against their corresponding inflation targets, both uses experience annual purchasing power erosion of close to 2 percent. The 20-year funding total for Operations and Maintenance is $11.6 billion and State Road Construction sums to $8.0 billion.

Figure E-9: Trunk Highway Fund Components and Budgeted Uses



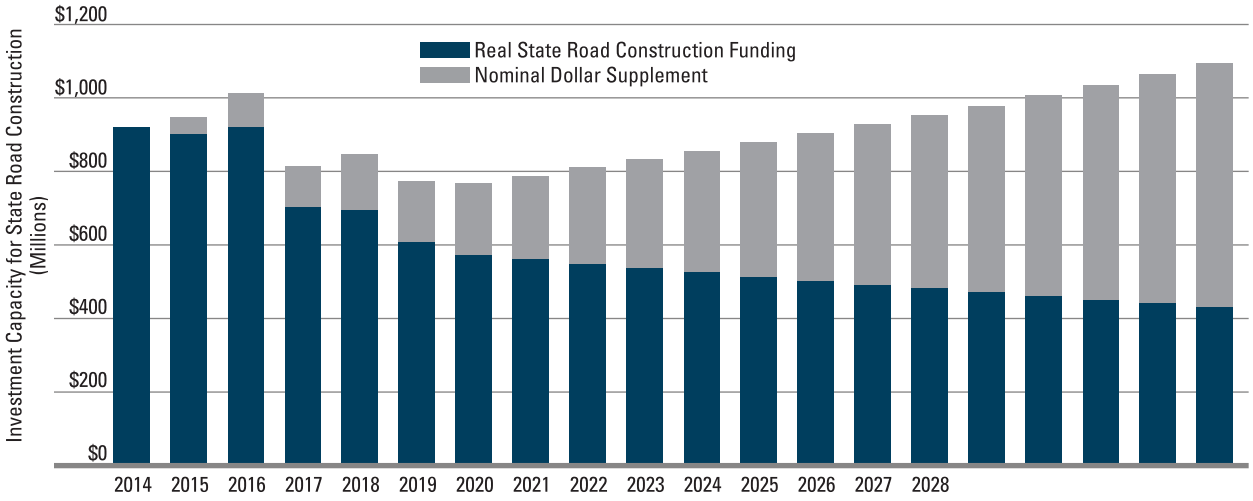
Source: MnDOT Office of Capital Programs and Performance Measures

Continuing to climb the column, two temporary additions to the revenue buildup are quantified: revenue received from newly-issued Trunk Highway bonds (yellow), and four years (two years in the 2014 to 2033 plan timeframe) of the fraction of funding for the Better Roads for a Better Minnesota pavement-improvement program to be drawn from pre-existing Trunk Highway Fund balances (aqua). The current bond sale schedule anticipates approximately $200 million in annual proceeds through SFY 2015, a local maximum exceeding $300 million in SFY 2016, lower levels close to $100 million in each of SFY 2017 and 2018, and a small final issue in SFY 2019. The Better Roads fund-balance allocation will raise State Road Construction spending by about $30 million annually from SFY 2013 to 2015 inclusive.

The top of each stack measures the Federal-Aid Highway Program contribution to State Road Construction, shown in navy. To summarize, adding together all segments appearing above Operations and Maintenance—namely, State Capital Target Formula, Bond Revenue, Better Roads (each of the last two when applicable), and Federal—yields the nominal-dollar State Road Construction 20-year grand total of $18 billion.

It should be remembered, however, that there are two complementary ways to think about the long-range funding outlook. As compared in **Figure E-10,** the nominal approach, reflecting traditional budgetary accounting practice, tells a story of mostly-increasing available resources—the notable exception being the drop from SFY 2016 to 2017, when projected bond revenues contract by $200 million. These annual amounts are indicated with the combined heights of the solid and striped column halves. Alternatively, after adjusting for the loss of purchasing power caused by 5% annual construction cost inflation, the emerging trend in real-dollar terms (solid section) is one of continually diminishing investment capacity after SFY 2016, the peak of bond revenue support. This interpretation reflects the persistent challenge of funding capital improvements when cost growth is projected to outstrip revenue expansion. This systemic fiscal constraint crucially shapes the next step of the planning process: consideration of investment priorities to optimize system performance for Minnesota drivers.

Figure E-10: Revenue Forecast for State Road Construction, Real and Nominal Perspectives



Source: MnDOT Office of Capital Programs and Performance Measures